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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,192	01/23/2002	Glenn W. Gengel	03424P056	3828

7590
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12/18/2007

EXAMINER

PIZARRO CRESPO, MARCOS D

ART UNIT

PAPER NUMBER

2814

MAIL DATE

DELIVERY MODE

12/18/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/056,192

Applicant(s)

GENGEL ET AL.

Examiner

Marcos D. Pizarro

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-22,37-40,42-60,99-102 and 105-114 is/are pending in the application.
- 4a) Of the above claim(s) 4,10-21,39,42-47,49-55,99-102 and 108-110 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-9,22,37,38,40,48,56-60,105-107 and 111-114 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1,2,4-22,37-40,42-60,99-102 and 105-114 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Attorney's Docket Number: 003424.P056

Filing Date: 1/23/2002

Claimed Foreign Priority Date: none

Applicant(s): Gengel et al.

Examiner: Marcos D. Pizarro-Crespo

DETAILED ACTION

This Office action responds to the amendment filed on 10/23/2007.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after the final rejection mailed on 8/21/2007. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/23/2007 has been entered.

Acknowledgment

2. The amendment filed on 10/23/2007, responding to the Office action mailed on 8/21/2007, has been entered. The present Office action is made with all the suggested amendments being fully considered. Accordingly, pending in this Office action are claims 1, 2, 4-22, 37-40, 42-60, 99-102, and 105-114.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. **Claims 1, 2, 5-8, 22, 37, 38, 40, 48, 56, 58-60, 105, 106 and 111-114 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akita (WO 2001-62517) in view of Swindlehurst (US 2006/0210769).**

6. Regarding claim 1, Akita shows all aspects of the instant invention including an apparatus comprising:

- ✓ A strap **7** including:
 - A first substrate **10** with an opening (see, *e.g.*, fig. 3)
 - An integrated circuit (IC) **4** embedded in the opening and having a conductive pad **19** (see, *e.g.*, fig. 12)
- ✓ A thin-film planarization dielectric layer **36** being patterned with at least two vias and formed directly over a portion of the IC and a portion of the first substrate **10** (see, *e.g.*, fig. 12)

- ✓ A conductive medium **11/21** covering at least a portion of the IC **4** and a portion of the first substrate **10** extending beyond edges of the IC, formed directly over the thin-film dielectric layer **36**, and attached to the conductive pad via through at least one of the vias, wherein the medium has a greater surface area than the pad and is a conductive paste containing silver filling the at least two vias and contacting the pad through the at least one of the vias (see, *e.g.*, fig. 12)
 - ✓ A large-scale component **6** attached to the medium **11** and electrically coupled to the IC **4** through the at least one of the vias, the component including a second substrate **2** that is larger than the first substrate **10** (see, *e.g.*, fig. 2)
7. Regarding claims 2, 6, and 8, Akita shows the component **6** including an antenna on the second substrate **2**, the antenna electrically coupled to the IC **4** directly through the medium **11** (see, *e.g.*, fig. 12).
8. Regarding claims 5, 7, 56, and 59, Akita shows the conductive medium **11** is paste and the IC contains circuitry suitable for radio frequency applications (see, *e.g.*, pp.11/II.19-21).
9. Regarding claim 22, Akita shows the first substrate is a flexible material (see, *e.g.*, fig. 7).
10. Regarding claim 105, Akita shows that the opening is tapered (see, *e.g.*, pp.10/II.15-24).

11. Regarding claim 106, although Akita teaches about the importance of the conductive medium (see, e.g., pp.6/II.3-11), he fails to specify the thickness of it is less than 1 micron. The specification, on the other hand, also fails to provide teachings about the criticality of having a conductive medium with the claimed thickness. In general, thickness differences will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such thickness is critical. "Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the workable ranges by routine experimentation". *In re Aller*, 220 F.2d 454,456,105 USPQ 233, 235 (CCPA 1955).

12. The specific claimed thicknesses for the conductive medium, i.e., about 1 micron or less, absent any criticality, are only considered to be the "optimum" thicknesses disclosed by Akita that a person having ordinary skill in the art would have been able to determine using routine experimentation based, among other things, on the desired adhesive strength, manufacturing costs, etc. (see Boesch, 205 USPQ 215 (CCPA 1980)), and since neither non-obvious nor unexpected results, i.e., results which are different in kind and not in degree from the results of the prior art, will be obtained as long as a conductive medium is used, as already suggested by Akita.

13. Accordingly, since the applicants have not established the criticality (see paragraph 25 below) of the claimed thicknesses, it would have been obvious to one of ordinary skill in the art to use these values in the device of Akita.

14. Regarding claims 112-114, Akita shows the planarization dielectric layer 36 extending beyond the edges of the integrated circuit 4 (see, e.g., fig. 12).

15. Regarding claim 37, Akita shows all aspects of the instant invention including an apparatus comprising:

- ✓ A substrate **10** (see, *e.g.*, fig. 12)
- ✓ An integrated circuit (IC) **4** embedded within the substrate **10** (see, *e.g.*, fig. 3)
- ✓ A thin-film planarization dielectric layer **36** patterned with at least two vias and formed directly over a portion of the IC **4** and a portion of the substrate **10** (see, *e.g.*, fig. 12)
- ✓ A conductive medium **11/21** covering at least a portion of the IC and a portion of the first substrate extending beyond edges of the IC, formed directly over a portion of the thin-film dielectric layer **36**, and in direct electrical connection with the IC **4** through at least one of the vias, wherein the medium is a paste containing silver filling the at least two vias and contacting the IC through the at least one via (see, *e.g.*, fig. 12)
- ✓ A large-scale component **6** connected to the medium **11**, coupled to the IC **4** through the at least one of the vias, and including a second substrate **2** (see, *e.g.*, fig. 2)

16. Regarding claim 38, Akita shows the substrate is a flexible material (see, *e.g.*, fig.7).

17. Regarding claim 40, Akita shows the apparatus further comprising a large-scale component connected to the medium and electrically coupled to the IC (see, *e.g.*, fig. 2).

18. Regarding claim 48, Akita shows the component is an antenna (see, *e.g.*, fig. 2).

19. Regarding claim 58, Akita shows that the IC is a radio frequency identification circuit (see, e.g., pp.1/II.1-10).
20. Regarding claim 60, Akita shows the component is a substrate having thereon an antenna coupled to the IC directly through the medium (see, e.g., fig. 2).
21. Regarding claim 111, Akita shows the apparatus comprising:
- ✓ A strap **7** including a first substrate **10** with an IC **4** having a conductive pad (see, e.g., fig. 3)
 - ✓ A thin-film planarization dielectric layer **36** being patterned with at least two vias and formed directly over a portion of the IC **4** and a portion of the substrate **10** (see, e.g., fig. 12)
 - ✓ A conductive medium **11/21**, covering at least a portion of the IC and a portion of the first substrate extending beyond edges of the IC, formed directly over the dielectric layer **36**, attached to the pad **19** through at least one of the vias; wherein the medium has a greater surface area than the pad, is a paste containing silver, fills the at least two vias, and contacts the pad through the at least one of the vias (see, e.g., fig. 12)
 - ✓ A large-scale component **6** attached to the medium **11/21**, electrically coupled to the IC **4** through the at least one of the vias, and including a second substrate **2** (see, e.g., fig. 2)
22. Regarding claims 1, 37, and 111, although Akita teaches about the planarization dielectric (see, e.g., pp.14/II.8-22), he fails to specify the thickness of it is less than 10 microns. The specification, on the other hand, also fails to provide teachings about the

criticality of having the planarization film within the claimed thickness. In general, thickness differences will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such thickness is critical. "Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the workable ranges by routine experimentation". *In re Aller*, 220 F.2d 454,456,105 USPQ 233, 235 (CCPA 1955).

23. The specific claimed thicknesses for the planarization dielectric, *i.e.*, less than 10 microns, absent any criticality, are only considered to be the "optimum" thicknesses disclosed by Akita that a person having ordinary skill in the art would have been able to determine using routine experimentation based, among other things, on the desired planarization, manufacturing costs, etc. (see Boesch, 205 USPQ 215 (CCPA 1980)), and since neither non-obvious nor unexpected results, *i.e.*, results which are different in kind and not in degree from the results of the prior art, will be obtained as long as a planarization dielectric is used, as already suggested by Akita.

24. Accordingly, since the applicants have not established the criticality (see next paragraph below) of the claimed thicknesses, and similar thicknesses have been used in similar planarization layers in the art (see, *e.g.*, Swindlehurst: par.0086) it would have been obvious to one of ordinary skill in the art to use these values in the device of Akira.

CRITICALITY

25. The specification contains no disclosure of either the critical nature of the claimed thicknesses or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the applicant must show that the chosen dimensions are critical. *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

26. Claims 9 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akita/Swindlehurst.

27. Initially, and with respect to claims 9 and 57, note that a limitation in a claim with respect to the manner in which a claimed device is intended to be used does not differentiate the claimed device from a prior-art device if the prior-art device teaches all structural limitations in the claims and the device is capable of performing the intended use. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997); *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). See *Hewlett-Packard Co. v. Bausch & Lomb Inc.* and the related case law cited therein which makes it clear that it is the final product *per se* which must be determined in a device claim, and not the patentability of its functions (909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990)). As stated in *Best*,

Where the claimed and prior art products are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977).

28. Note that the applicant has burden of proof once the examiner establishes a sound basis for believing that the products of the applicant and the prior art are the same. See *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

29. In the instant case, the integrated circuit could be used as a display driver, as control circuitry for an electronic display, as data storage of information, etc. In reference to the language in claims 9 and 57 referring to the function of the integrated circuit, it is noted that Akita shows most aspects of the semiconductor device according to the instant invention (see paragraphs 6, 15, and 22-25 above) and using the

integrated circuit as a display driver or to control an electronic display, are functions that do not affect the structure of the final device.

30. There are no structural implications from claiming the IC as “a display driver” or as “suitable to control an electronic display”. The claim terminologies “display driver” and “suitable to control an electronic display” are mere functional labels given to the claimed IC that do not differentiate the claimed IC from the prior art IC. These functional labels are only considered in terms of a necessary resultant structure from the labels. The functions itself are not at issue. The device claims are not limited to the recited functions of the IC. Furthermore, Akita’s device is capable of performing the claimed functions. For example, the device may receive information by means of its antenna. Since the antenna is coupled to the IC, the IC may read the information gathered by the antenna and use it to electronically control an electronic display coupled to the IC.

31. Claim 107 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akita/Swindlehurst in view of Fjelstad (US 6211572).

32. Regarding claim 107, Akita shows most aspects of the instant invention (see, e.g., paragraph 6 above). As set forth above, Akita also shows a film dielectric layer (see, e.g., fig. 12). Although he specifies that his dielectric layer comprises an epoxy resin (see, e.g., pp.14/II.8-14), he fails to specify that it may also comprise silicon dioxide. Fjelstad (see, e.g., col.5/II.49-54), on the other hand, teaches silicon dioxide to be an equivalent material to Akita’s epoxy resin.

33. Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art to use either silicon dioxide or an epoxy resin in Akita’s apparatus

because these were recognized in the semiconductor art for their use as dielectric materials, as taught by Fjelstad, and the selection of any of these known equivalents would be within the level of ordinary skill in the art.

Response to Arguments

34. The applicant argues:

35. As amended, claims 1, 37, and 111 now require that the conductive medium be formed directly over the planarization dielectric layer, fills at least two of the vias in the dielectric layer, and contacts the conductive pad of the IC through at least one of the vias.

36. The examiner responds:

37. Akita clearly shows these limitations of the claimed invention. See, e.g., fig. 12, where Akita shows the IC 4 having a conductive pad 19; the planarization dielectric layer 36 being patterned with at least two vias; and the conductive medium 11/21 being formed directly over the planarization dielectric layer 36, filling the vias, and contacting the pad 19 through at least one of the vias.

Conclusion

38. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. Papers should be faxed to Art Unit 2814 via the Art Unit 2814 Fax Center. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(571) 273-8300**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.

39. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Marcos D. Pizarro-Crespo** at **(571) 272-1716** and between the hours of 10:00 AM to 8:30 PM (Eastern Standard Time) Monday through

Thursday or by e-mail via Marcos.Pizarro@uspto.gov. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy, can be reached on (571) 272-1705.

40. Any inquiry of a general nature or relating to the status of this application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Art Unit: 2814

41. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/678-786	12/12/2007
Other Documentation:	
Electronic Database(s): EAST (USPAT, EPO, JPO)	12/12/2007

/Marcos D. Pizarro/

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